EBU Village at IBC 2000

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The EBU's "Village" was back in Hall 10 (Deltahal) of the RAI conference and exhibition centre in Amsterdam this year. There are several notable statistics to mention. It was the largest space ever occupied by the EBU at an IBC (150 m^2). It was the first time (in a long while) that the EBU employed a new stand builder. It was the first time (ditto) that a Scandinavian EBU Member joined the Village, and it was certainly the first time (ever!) that the EBU hosted a part of Microsoft Corporation on its stand.

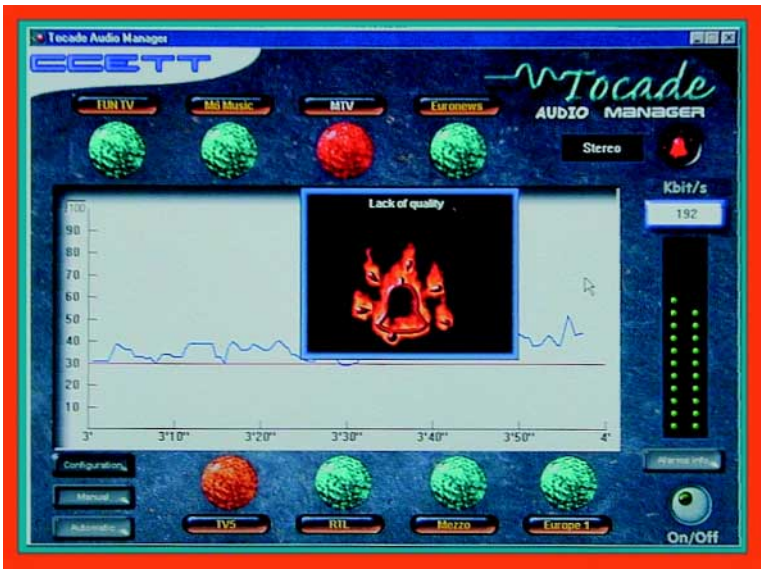
Seen from a great height which thankfully I didn't, the Village looked like a giant exclamation mark surrounded by an ellipse. This was the stand builder's clever means for ensuring that all the co-exhibitors at the Village had a clearly-identifiable individual presence, whilst benefiting from the umbrella of the EBU. On mentioning umbrellas, it should also be noted that the EBU Village possessed one of its very own – high above the stand and onto which all the corporate logos of those on *terra firma* down below got projected in a more-or-less random sequence. (An aside: next year I'd better specify a projector with a much wider throw – my oversight and certainly not that of JVC UK who very kindly loaned us their excellent D-ILA projector, a Plasma screen and a D9 VCR).

DVB figured largely in many of the exhibits in the Village. Three satellite antennas provided signals from Astra 2, the Eutelsat Hotbirds and Eutelsat W3 (the Eurovision satel-

lite). In addition there was a local DVB-T service being transmitted from the KPN tower a kilometre or so from the RAI centre, courtesy of Nozema. Even though the transmitted power of this signal was just a kilowatt, the COFDM signal romped through the halls in spite of their mostly metallic construction and all the complex topography presented by the stands within.

Another technology that was widespread throughout the Village was DVD. It's a great format for the repetitive presentation of corporate material, explanatory videos and such-like. Unlike VHS tapes, the discs don't wear out, there is no down-time whilst the programme restarts from the beginning, and DVDs can be authored to provide a high degree of interactivity if the demonstration calls for it. A word of caution, though: not all commercially-available DVD players can read discs that have been blown in a DVD burner.

TDF / CCETT



TDF / CCETT had a lot to demonstrate on their stand. As well as several software packages, there was hardware of various types.

The **TOCADE** system of perceptual quality assessment software and hardware has expanded to **TOCADE VIDEO**, a new version to monitor the perceptual quality of digital pictures, and **TOCADE AUDIO** which monitors the perceptual quality of digital audio. The graphic user interfaces of both these products still shouted "Renault dashboard" at me, but they are easy to use and do a demonstrably good job in a difficult area of assessment.

Kit RDI is a toolkit for laptop PCs that enables the reception and analysis of DAB data. This kit, part PCMCIA card and part software, was not fully demonstrated at the stand as the DAB signal strength in Hall 10 leaves a lot to be desired currently.

The CCETT **DVB-T IRD-Pro** that was being exhibited in its latest guise was being fed the DVB-T signal from a simple set-top antenna. This is a receiver-decoder of quite domestic appearance which does everything you'd expect of a good set-top DVB-T box, plus it lets you monitor and measure DVB-T signal parameters. Another piece of hardware was to be found in close proximity to the IRD-Pro, but it was sufficiently diminutive that you had to look hard for the **MPEG/TS interface** which was just one example of a range of compact transport stream converters and splitters designed by TDF/CCETT.

POM and **INFOCAST** are PC-based tools. The former is a quality assessor of audio equipment, and the latter is a tool to create a push multimedia service on any kind of network.

All in all a very busy exhibit, and everything was presented by a team whose Gallic charm provoked a touch of cardiac arrhythmia in some other parts of the EBU Village, I noticed.

BBC Research and Development

Imagine walking around with a complete television station on your person. This is effectively what BBC R&D were offering with their **Cable-Free Digital Camera**. An ENG camera head and lens package was married to an MPEG-2 coder and to a COFDM modulator and output stage, and the whole lot was powered from a perfectly normal battery belt. Further development promises to integrate the MPEG coding and COFDM and power stages, with a useful reduction in weight and power consumption.

The BBC jointly developed the **MPEG coder** with Sony Corporation, and it is uniquely responsible for the development of the already highly-integrated **COFDM coder** and **RF power stage**. Hall 10 was jam-packed full with equipment producing a large amount of potential electromagnetic interference, and there were few line-of-sight paths from the EBU Village to the further reaches of Hall 10. Nevertheless, with about 50 mW of transmitter power coming from the camera, it was able to be carried around the perimeter of Hall 10 with never a break in perfect reception at the EBU Village. To prove that this was being done in accordance with published standards, reception was also being demonstrated on a domestic DVB-T IRD after the signal had been frequency down-converted from the 2.5 GHz transmission frequency. The BBC had a lot of interest in this product, and deservedly so.

YLE

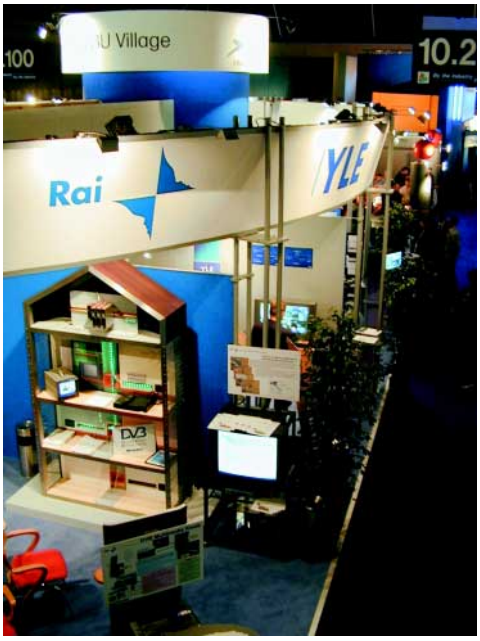
Finland has chosen to use the **DVB MHP API** in its digital television service, and YLE was at the EBU Village to demonstrate the soundness of this choice.

DVB signals were received by a pair of pre-production Philips Trimedia MHP terminals, and as well as demodu-

lating and displaying the signals, MHP applets (or xlets as they are called in MHP speak) were run from the hard disks inside the terminals. The applets chosen were typical of those that will create interesting interactive services for digital television such as detailed EPGs and interactive games. The applications could be run alone or as an overlay on top of the broadcast video programme. When you get to the boring bits of the programme, you can always play a quick game of Tetris or Scoreboard to relieve the tedium, it appears – advertisers beware!

RAI Research and Technological Innovation Centre (CRIT)

RAI, the EBU Member from Italy was exhibiting some very stylish hardware in the shape of its **DVB Multimedia Kiosk**. It also had some innovative **DVB MHP applications** working, and there was a presentation of a **DVB carousel** approach to broadcasting regional news programmes. Fracarro Radioindustrie (Italy) exhibited a new way of distributing DVB signals in apartment blocks, developed jointly with the RAI.



DVB allows the broadcasting of multimedia services along with normal television programmes. These multimedia services may be interactive, and they can be used for electronic programme guides, enhanced teletext and other entertainment and business data services.

RAI's DVB Multimedia Kiosk is a rugged unit that exploits the flexibility of the DVB system (there are versions for DVB-T, DVB-S and DVB-C). It is intended for use by the public in hotels, railway stations, shopping malls or anywhere that a sophisticated information delivery system would be appropriate. The kiosks are individually addressable, and a group of them can be made to function differently even if they are all receiving the same off-air data stream. The kiosk in the Village was a DVB-S version, and it demonstrated full-screen TV and Radio broadcasts in the satellite multiplex and various combinations of windowed TV and Web pages incorporating MPEG-4 video clips retrieved from live television programmes such as RAI News24. Even without a return path to the data playout server, a high degree of local interactivity is attainable through navigation on web pages downloaded into the kiosk's hard disk.

In February 2000 the DVB Project approved the first release of the DVB Multimedia Home Platform (MHP) specification, aimed at introducing an open platform for multimedia and interactive TV services. The key element of the MHP specification is the Application Programming Interface (API), on which Java-based applications run. Various profiles are defined, such as the "Enhanced Broadcasting" profile, which supports access to broadcast services and local interactivity. There are also "Interactive Broad-

cast" and "Internet Access" profiles that are expected to be included in the next release of MHP.

CRIT has developed a variety of MHP applications, ranging from Electronic Programme Guides (EPGs) to interactive advertising and e-commerce. The Village demonstration centred on an advanced EPG incorporating textual information and still pictures. Along with programme titles, descriptions and scheduling information, programme segmentation metadata is also transferred to handle serials and other episodic programming.

The transmission and control system that enables the broadcasting of MHP applications in DVB channels was also designed and developed by the CRIT. The system is compatible with the DVB Object Carousel protocol and, furthermore, a robust communication protocol (IP-based) allows file transfer from a remote site to the control system's storage unit.

Mention of the Carousel protocol brings us to the system for transmitting each of the RAI's 20 regional news programmes. A DVD-based demo showed how groups of four 20-minute regional news programmes can be assembled into DVB carousels and broadcast by satellite as part of a multiplex.

Each of the five resulting carousels is assigned an average bit-rate of 2 Mbit/s. The regional news programme is reduced to occupy about one quarter of full-frame, and the surrounding area is filled with textual data such as news headlines, the weather forecast, the time schedule of the regional programmes in the carousel and other information. Using this scheme, the start of every news programme is never more than 80 minutes away, and yet all twenty programmes are transmitted in a total data rate of 10 Mbit/s.

Fracarro's exhibit of their prototype **digital SMATV** (Satellite Master Antenna TV) system may have been gravitationally overwhelming (about 200 kg!), but it showed an exceedingly elegant means of integrating digital reception of DVB signals in an apartment block currently served by an analogue MATV (Master Antenna TV) cable distribution system.

Each digital set-top box in the apartment block is assigned its own (8 MHz) RF channel on the cable distribution network. The clever part is that for every digital user in the apartment block there is an "individual remotely-controlled transmodulator" at the SMATV terminal (usually near the roof antennas) which selects the desired satellite transponder (DVB-S QPSK modulation) and transmodulates the contents to 64-QAM, DVB-C modulation for distribution to the user's STB using his dedicated RF channel. The remote control channel from each STB to the "individual transmodulators" is passed through the cable distribution network using FSK modulation, so no extra wiring is needed.

In this way, each digital user in an apartment block has complete autonomy over his programme selection whilst the number of channels occupied in the cable network is constrained to a manageable number.

RTBF / Octalis

Archives are the flavour of the moment, so the RTBF's live demonstration of **satellite access to archive servers** at the RTBF in Brussels and the TSR in Geneva was a very popular attraction. The technique used is based around a system specified by the EBU's N/ArchiveX group for the exchange of television archives over the MPEG-2 based Eurovision network.

The request for an archive file transfer is made through the Internet and the system then ensures that the appropriate file is transferred through Eurovision's satellite capacity. The file transfer mechanism is tied in with Eurovision's Advanced Planning Procedure (APP) servers which take into account other Eurovision satellite traffic and optimize the transponder loading. From the Village, files could be chosen from both RTBF and TSR archives using an Internet connection. Once requested, these archives were delivered through Eutelsat W3 to the EBU Village, where a PC equipped with a DVB-T reception card received the files. Another PC in communication with the APP servers could be used to control the overall system and, for the purposes of the demonstration, could force file transfer over different satellite channels on W3.

Watermarking of multimedia works is rapidly becoming an important issue in today's digital broadcasting environment. Whilst the watermarking of still images and video sequences stored on servers can be done at leisure, the needs of an organization such as the EBU can only be satisfied by real-time watermarking of full broadcast specification video as it is generated, or as it enters Eurovision's networks.

The EBU's N/WTM group has drawn up a set of user requirements for watermarking in broadcasting applications, and armed with these it launched a Request for Technology (RfT). At the Village, a DVD demo illustrated the results currently being obtained with the four watermarking systems that were tendered in response to this RfT.

Also on the RTBF stand the "**Basic Interoperable Scrambling System** (BISS)" specified by the EBU's N/DSNG-CA group, and published in EBU Tech 3290 (March 2000) was being made available.

Octalis has worked closely with the EBU on watermarking and on file transfer technologies and Jean-Marc Boucqueau and his team were on hand to field technical requests along with Eddy Goray of the RTBF.

EBU Network Marketing

The EBU runs its Eurovision and Euroradio operations on international networks consisting of both satellite and terrestrial circuits. The use of digital compression on these networks has meant that their effective capacity to carry television and radio programming has increased dramatically over the last two or three years.

Ideally, networks and network capacity need to be used every minute of the day and night and the EBU's Network Marketing Department – in the persons of Paulo Pusterla and Claude Stoffel – were at hand to ensure that this is what happens most of the time. Clients, both current and potential, were regular visitors to the Village, each enquiring after what the EBU does rather well – reliable and secure programme carriage throughout Europe and to and from North America and Asia.

EBU Communications

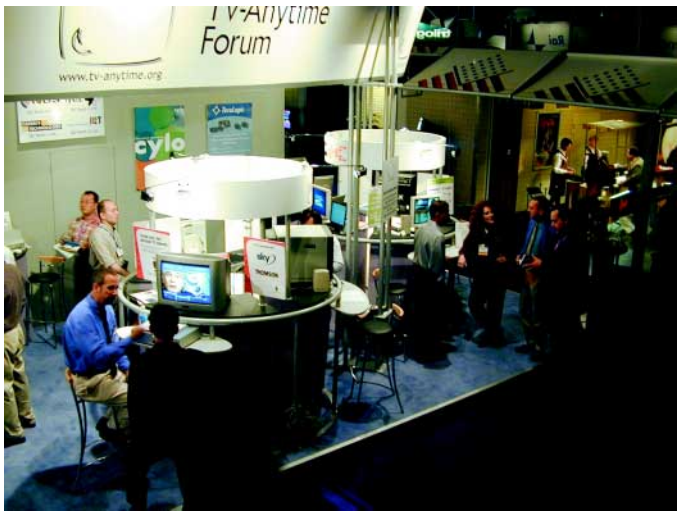
Practically squeezed off the Village by reason of our Members' enthusiastic requests for space, EBU Communications nevertheless represented the EBU, its website and publications in a more than adequate manner. The enabling weapons were eye-catching wall treatments, a fast Internet connection (thanks to the IRT) and a brand new corporate video in both English and French versions on DVD-ROM. Much of the EBU's documentation is now available on its recently revamped website, and this was proved to several people who arrived looking for printed standards but were able to leave the EBU Village with the wanted documents on floppy disk.

TV-Anytime Forum

The TV-Anytime Forum occupied the largest floor area in the EBU Village, and yet their stand was packed with exhibits too numerous to mention individually. Notable names abounded in this part of the Village. NHK, IRT, Canal+ Technologies, Cylo, IB Labs, Kargo, Lysis, MbTV, NDS, TiVo, Replay TV and Microsoft TV were all present and correct. So too were Kellie McKeown and Stephan Heimbecher, a double act *par excellence* whom I believe are the essential oils that make the Forum run smoothly.

Put succinctly, TV-Anytime is about the ability to access programming by any means, from any provider at any time. Personal Digital Recorders (PDRs) abound, and are an

enabling technology. Clever software to access and reference content, together with metadata and rights management are all part of the Forum's work. The bottom line is that you need never miss a TV or radio programme you're interested in, ever again – come to that, you need never again miss a programme you didn't know you'd be interested in, because the "TV-Anytime box" will learn your programme preferences and could decide to record a show you missed in the listings – clever, or what?



Next Year

It was very gratifying to have so many EBU Members in the Village. We could have accommodated more if space had permitted and, in consequence of this, next year's Village promises to be even bigger and better than this year's.

Why not get in touch with the people who really know what went on in this year's EBU Village? – click on the links below and all will be revealed.

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